Title: Characterization of spectrograph with CCD camera

Author: Michal Vyvlečka

Department: Department of Chemical Physics and Optics

Supervisor: doc. RNDr. Petr Němec, Ph.D.

Abstract: This work is focused on the determination of parameters of a CCD camera DU420A-OE and a spectrograph SR303i-A, which were bought in summer 2014 to the laboratory of Opto Spintronics at the Charles university in Prague. The first chapter includes a short description of CCD detection and focuses itself on a classification of noise affecting spectroscopy measurements and possibilities of its elimination. The second chapter includes the description and the results of measurements of the properties of the CCD camera and the spectrograph. The emphasis is put on the measurements of influence of various parameters and conditions for measuring the signal to noise ratio and on finding the optimal configuration for measuring weak signals, which means that the results of this work can be generalized for all the spectroscopic measurements in which CCD cameras are used as detectors.

Keywords: CCD camera, spectroscopy, dark noise, readout noise